

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

Vol. XII.

JUNE, 1906.

LIBRARY
RECEIVED
JUL 10 1906
U. S. Department of Agriculture

THE AGRICULTURAL STUDENT



IF IT'S A
DE LAVAL
that's all you need to know about a
CREAM SEPARATOR

Send for Catalogue and Name of nearest Local Agent

THE DE LAVAL SEPARATOR CO.

Randolph and Canal Streets, CHICAGO.

74 Cortlandt Street, NEW YORK.

5¢
PER
COPY

A
MONTHLY MAGAZINE
DEVOTED TO
AGRICULTURAL
EDUCATION

50¢
PER
YEAR

FIRST GRADE BUTTER

That's what brings the top prices! The trade demands it. The creameries want to furnish it. But to do so, they must have **first grade cream** and an increasing number of them are willing to pay a "premium" to get it. Much of the cream now comes from farm separators, and it will increase, for the use of farm separators is increasing. The farm separator not only **makes** the farmer more money, but it **saves** him money, saves him time and makes his work easier. The situation is plain. The creamery **must** have first grade cream and the farmer is bound to use the hand separator. Therefore, the separator he uses must be **capable of producing first grade cream**.

This is so important that in some states the dairy authorities are taking up the matter. In one state the Dairy Commissioner, in a circular about grading cream, makes among others the important recommendation that, "All cream producers using hand separators should produce only 'extra quality or premium cream,' and thus secure for themselves the highest price." But to get the premium the farmer must have a separator that **can** produce "extra quality" cream, and he should buy only the separator that can skim a heavy cream, and **skim clean**. The Improved

U. S. CREAM SEPARATOR

can skim a heavier cream than any other and do it **without clogging**.

The U. S. has the record of skimming a cream testing **65 per cent**. And remember: The U. S. holds the **World's Record for clean skimming**.

IT GETS THE MOST CREAM AND WILL DELIVER AS HEAVY A CREAM AS YOU WANT



Our fine new 1906 separator catalogue shows clearly **why** the U. S. can skim the **first grade** cream; how it made the World's Record for clean skimming; and with the aid of numerous accurate illustrations plainly **proves** why the United States Separator is the easiest cared for, longest wearing and most profitable cream separator built today. Write today for this book—just say "Send Catalogue No. 9" and you'll receive it by **return mail**.

Vermont Farm Machine Co.

BELLOWS FALLS, VT.

THE AGRICULTURAL STUDENT

Eclipse Hocking Coal

PRODUCED BY

Johnson Coal Mining Co.

General Office: Spahr Building

Yard Office: 400 West Broad St.

COLUMBUS, OHIO

Telephones—Bell, Main 215 Citizens 6439

Also Dealers in

Anthracite, Smithing, Coke, &c.

FRANK C. KELTON.

WADE CONVERSE

Kelton & Converse,

Dealers in

Lumber, Lath, Shingles,

Doors, Sash, Blinds,

Door and Window Frames,

Mouldings, Etc.

Cor. Spring and Water Sts.

COLUMBUS, O.

Telephone No. 2279.

**BLACKWOOD,
GREEN & CO.**

HARDWARE

**STOVES AND HOUSE
FURNISHING GOODS.**

SLATE and METAL ROOFING

624 North High Street,
Columbus, Ohio.

BRADSHAW, THE STUDENTS DRUGGIST

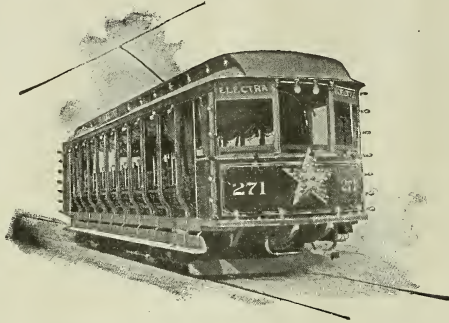
KING AVENUE, NEAR NEIL

When writing to Advertisers, mention THE STUDENT.

THE COLUMBUS RAILWAY AND LIGHT CO.

The Car Service Cannot be excelled by any Street Railway in a city of like population. All lines center in the heart of the city and extend in all directions to the suburbs. The lowest rates of fare of any city in the United States. Trolley parties specially cared for by chartered cars.

OHIO STATE
UNIVERSITY IS
REACHED DIRECT
BY EITHER
HIGH STREET
OR
NEIL AVENUE
LINES



THE LOWEST
FARE IN
THE COUNTRY.
TRANSFERS
TO ANY PART
OF THE
CITY

Every State Institution, Hospital, Cemetery, City Park, Hotel, Depot, Principal Business House, and all the various points of interest to be desired are reached or passed by cars of this Company. Operates and controls the lines to Westerville and Arlington. The latter are delightful suburban rides.

Smith's Academies of Dancing Oldest, Largest, Best.

Special Students Classes on
Friday and Saturday Evenings.

Main Office: High and Gay Sts.

Both Phones.

TO THOSE WHO NEGLECTED TO LEARN TO DANCE
DURING THE WINTER TERM

Prof. W. J. Rader's



Neil Avenue Academy of Dancing

647 Neil Avenue. Phones—Cit. 4431, Bell 6189.

Will organize a beginner's class Wednesday evening, May 2, 7:30 o'clock.
You can take as many lessons a week as you desire.

TUITION

Gentlemen, per term of 10 lessons	\$5 00
Ladies, per term of 10 lessons	3 00

Tuition can be paid \$1.00 per week until paid. Private lessons can be had afternoon and evenings. The Academy and Pavilion are on the same grounds, which makes it convenient for me to teach in the Academy, which is well ventilaed and is pleasant for summer instruction.

GRAND OPENING SUMMER PAVILION

Neil Ave., Between Goodale St. and Poplar Ave.

Monday evening, April 30. Open every evening—Sunday's excepted.

THE AGRICULTURAL STUDENT

OHIO STATE UNIVERSITY COLUMBUS, OHIO

Six Colleges:

AGRICULTURE AND DOMESTIC SCIENCE

Homer C. Price, M. S., Dean

ARTS, PHILOSOPHY AND SCIENCE

Joseph V. Denney, A. B., Dean

ENGINEERING

Edward Orton, Jr., E. M., Dean

LAW

Joseph H. Outhwaite

PHARMACY

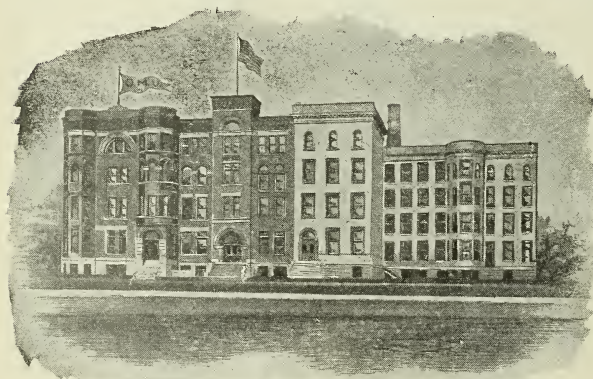
George B. Kauffman, B. Sc., Dean

VETERINARY MEDICINE

David S. White, D. V. M., Dean

WILLIAM OXLEY THOMPSON, LL. D., D. D., President.

Ohio Medical University.



Colleges of **MEDICINE, DENTISTRY**
and **PHARMACY.**

Four years' graded course
in Medicine, three in Dent-
istry and two in Pharmacy.
Annual sessions thirty-four
weeks.

**All Instruction except Clinical, by
the Recitation Plan.**

Students are graded on their daily recitations, term and final examinations. Large class rooms designed for the recitation system. Laboratories are large, well lighted and equipped with practical, modern apparatus. Abundant clinical facilities in both Medical and Dental departments.

Sessions for 1905-1906, in all Colleges, begins Tuesday, September 12th, 1905.

For catalogue and other information address:

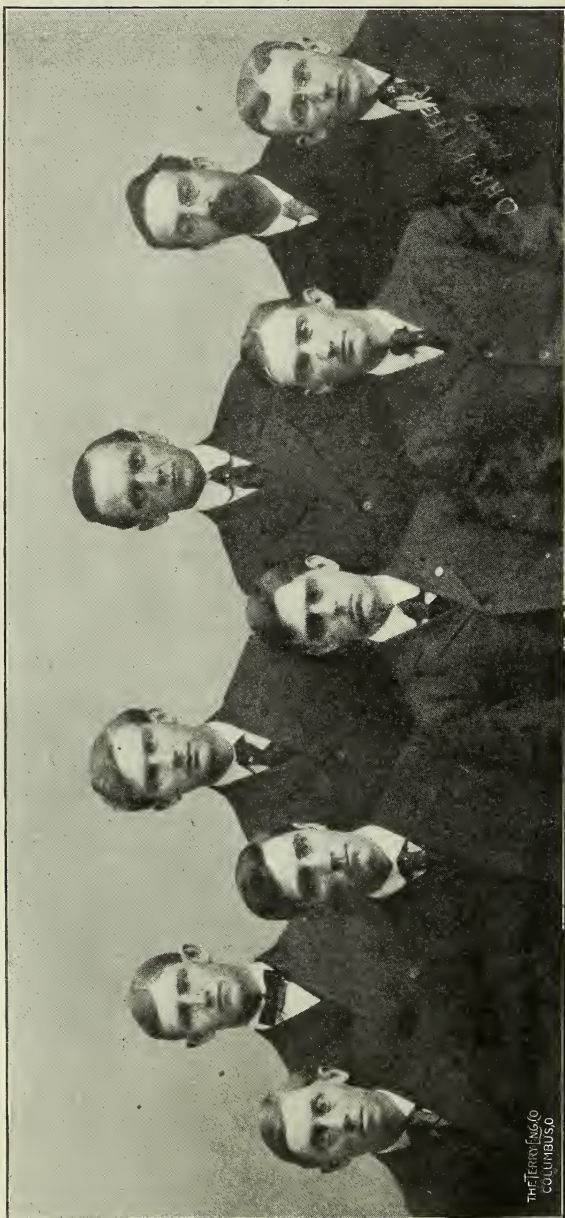
GEO. M. WATERS, M. D, Dean,
College of Medicine.

L. P. BETHEL, D. D. S., Dean,
College of Dentistry.

GEO. H. MATSON, G. PH., Dean,
College of Pharmacy.

Ohio Medical University

**700-714 N. PARK ST.,
COLUMBUS, - OHIO.**



LATE MANAGEMENT OF THE AGRICULTURE STUDENT

Top Row—N. E. Shaw and L. E. Call, Associate Editors; Prof. V. H. Davis, Business Manager;

Prof. A. Vivan, Advisory Editor.

Lower Row—F. D. Heckathorne, Associate Editor; C. D. Hyatt, Editor; S. H. Shawhan, E. J. Kitchen and

H. C. Ramsower, Associate Editors.

THE AGRICULTURAL STUDENT.

Vol. XII.

OHIO STATE UNIVERSITY, COLUMBUS, JUNE, 1906

No. 9

TERMS OF SUBSCRIPTION:	
One Year.....	\$0.50
One-half Year.....	.30
Single Copies.....	.05

While this magazine is published with the approval of the President of the University and the Officers of the College of Agriculture and Domestic Science, the editors are responsible for the statements in all unsigned articles.

Address all communications to the Business Manager, Agricultural Student, Columbus, Ohio.

Entered at the Post-Office, Columbus, Ohio, as second-class matter.

PUBLISHED MONTHLY BY

THE AGRICULTURAL STUDENT

PUBLISHING COMPANY.

CHAS. D. HYATT.....Editor

ALFRED VIVIAN.....Advisory Editor

VERNON H. DAVIS.....Business Manager

STAFF.	
E. J. Kitchen	S. H. Shawhan
N. E. Shaw	L. E. Call
F. D. Heckathorn	H. C. Ramsower

CONTENTS

Editorial Comment	183
Notes on City and Town Parks ..	185
Guessing	186
O. S. U. Baseball	186
Purdue Track Meet.....	186
University News	187
Agricultural Extension Work....	188
Our New Possessions	188
Special Premium for Live Stock Exposition.	191
Agricultural News	191
A Girl Graduate's Ambition	192
Our National Debt.....	193
Growth of Telephone System ...	193
Bee-Keeping as an Occupation...	193
In the Valley of the San Joaquin.	195
Pollination in Orchards	197
Enrollment in College	199
An Inviting Field for the Agri- cultural College Graduate ...	200
Alumni Notes	202
Book Reviews	203

EDITORIAL COMMENT

With this issue volume twelve of THE AGRICULTURAL STUDENT has been completed. We use space here to thank those who have contributed to the welfare of the magazine, and especially do thank those outside of the University. We have had several contributions from such source and, as THE STUDENT is the organ of the Agricultural College, we feel that a very friendly spirit does exist toward the latter institution.

THE STUDENT is "a monthly magazine devoted to agricultural education." While the University News and Alumni Notes, strictly speaking, do not come under this heading, yet they act rather indirectly in promoting agricultural education. They bring before the public the working of the Agricultural College. Seeing the need of a full statement in this respect we have devoted quite a little space to such items. But these are not nearly so complete as they should be. We hope the new management will recognize this fact and develop more fully this line, for there certainly is a need for such items.

We laso hope the present cover of this magazine will be discarded and a new

and more appropriate, as well as becoming one, adopted. Anyone unfamiliar with the paper would have a guess coming as to what it really was, judging merely from the cover page.

Governor Folk of Missouri advocated compulsory education in the South. Are we ready for such a move? The negro problem is the greatest before American people today. What shall be done with the negro? The old idea of free transportation to other lands is absurd. It has been tried and found unsuccessful; but suppose it should become compulsory. Is not the negro an American citizen, and besides how long would it take with present accommodations, to ship over some 11,000,000 people? It would cause a war not only of blacks against whites, but blacks and whites against whites.

It seems that the negro is to remain here and become a fixture and the question of how to uplift him should receive careful attention. This is Booker T. Washington's idea, and how it works out is shown by an illustration taken from that great man's lectures.

A graduate in the dairy course of Tuskegee became noted for the fine butter which he made. In time he was duly installed in an up-to-date creamery in which several white men were employed. Owing to the fact that the negro could make a finer product, was worth more to his employer, he was put at the head of the concern. Now it makes little difference to employers, as a rule, what is the color of the workman just so long as he is able to supply the product.

Returning to the point in question then, Mr. Folk would make the education of these people compulsory. In

this case the burden of education would fall upon the taxpayer, which is certainly not the negro. Now we can see that these people are to become a fixture here in the United States, and it is to the interest of the American people, in some way, to raise their standard of living; but in all fairness should the taxpayer be called upon to do this? If there could be some way devised whereby the colored race be made to pay for their own schooling or a large part of it, no one would have room for objection.

In connection we would say that by far the greatest evil today, as found with the colored race, is the intermarriage between blacks and whites. The American people have always boasted of a high standard of living and this standard, because of the above evil, is in danger of being lowered. Now would it not be well to correct this one great evil before thinking of compulsory education?

We have all expressed ourselves as being glad that our college days are drawing to an end. There are some things in the college life that do not go as smoothly as could be wished; there is work to be done contrary to the expectations of some; disappointments to be met; "unreasonable" professors, but for all that we heartily join our voices in the following and shall always wish good luck to our Alma Mater:

We love to sing of O. S. U.,
Our noble Alma Mater;

In all the West she is the best,
And none will e'er be greater;
The ties that bind us to college days,

No power can ever sever;
For we'll be true to the O. S. U.
And the Scarlet and Gray forever.

Tune ever yheart to sing for joy,
And banish every sorrow;

The boys and girls who leave today
 Will build her up tomorrow;
 We're all in love with our college home,
 The pride of our endeavor;
 And we'll be true to the O. S. U.
 And the Scarlet and Gray forever.

When we have left these dear old halls,
 Upon our graduation,
 Another throng shall sing our song
 Of loyal adoration;
 The memory of our college life,
 Shall never fade, no never;
 We'll all be true to the O. S. U.
 And the Scarlet and Gray forever.

—SONGS OF THE SCARLET AND GRAY.

Notes on City and Town Parks

PROF. W. R. LAZENBY.

The primary object of a city park is to minister to the health and pleasure of those who frequent it. In addition to this, or rather to fully accomplish the object stated, any public park worthy of the name, should aim to give expression to the beauty of the vegetable world.

There is an instinctive desire for the beautiful implanted in every human being. Everywhere eyes are delighted and hearts gladdened by beauty.

A park should be the best possible example of landscape gardening, and the development of the beautiful is the end and aim of the art of landscape gardening, as it is of all other fine arts.

Among the fundamental elements of all the natural beauty of parks are grass and trees. A smooth, closely cut green, velvety surface or covering of grass is by far the most important element of beauty in all pleasure grounds. It is always restful and refreshing. In many of our parks it would be a great gain if one-half or more of the poorer trees, shrubs and dazzling flower beds were replaced with fresh, green grass.

If grass is the most effective agent in all landscape scenes, then one of the most attractive and welcome features of a park is a well-kept lawn.

Without open, wide-spreading lawns here and there in a park, no picture-like or landscape effects can be produced. All our impressions are confused. We cannot see the individual beauty of tree or shrub. The effect is that of being in a sparsely planted grove or in a well thinned nursery plantation.

It is just as impossible to make a really beautiful park without open extended lawns, as it would be to make a lake without water. Whatever else we may, or may not have, the one indispensable element is the soft, green turf with which we drape and cover the swelling outlines of the earth..

Yet this principle, in general design as well as in the arrangement of detail, is constantly violated in many of our parks.

The old plan of setting out a tree and making a flower bed wherever there is room for them, is too often followed, and the result is that our parks are devoid of all picture-like effects—all landscape beauty..

Besides being indiscriminately planted with trees, shrubs and flower beds, many otherwise good parks are ruined by having too many walks and drives. These are only necessary where actually demanded by use. As a rule all walks and drives detract more or less from the real beauty of a park. They are expensive to make, troublesome to keep in order, and should only be seen where they are an absolute necessity. The greater the area of unbroken lawn, the better the effect.

In many parks the walks and drives are laid out in symmetrical figures and on such a scale as to give one the idea that the park is made for the walks. In

some parks it is advisable to wait and watch the demand for walks. When a path begins to appear, and its general direction and extent are clearly indicated, the need of a walk is manifest.

The old idea that the lawn should not be stepped upon still holds in some places, and it is thought necessary to have a walk to every rustic seat and flower bed.

As a rule, however, walks are becoming less in area, and the park lawn is treated as an earth carpet that is designed for proper use, just as is the carpet of a well ordered sitting or living room.

Guessing

E. S. GUTHRIE.

There is no business that is run on a guessing basis so much as that of farming; and in the dairying branch of agriculture this is especially noticeable.

During the past two months I have been testing the cows near College Corner, Ohio. Seventy-four farmers sent samples from each of their cows to the creamery and of these seventy-four, eighteen were willing to say which was their lowest testing cow. Eight guessed correctly and ten missed it. Twenty-one told me which would test the highest; eight guessed correctly and thirteen showed their lack of ability along guessing lines. In fact, two cows which were thought to be the best were the poorest. Most of those who did not express themselves are running this guessing game on their farms, but were not willing to participate when it came to a "showdown."

In this guesswork the dairyman naturally thinks that the best heifers are offspring of the cows that he guesses are his best ones. Such a dairyman would run even a good herd into the ground.

Why not use business methods and buy a hand-tester for \$5 or less and stop guessing?

A great many dairymen, by guessing, will tell you exactly what their test at the creamery should be. One woman in our dairy meeting at College Corner, who guessed that their test should be over 4 per cent., said: "We couldn't afford to buy a tester for only three cows when we get only 35 cents."

The fact is, they cannot afford to be without it. If these guessers should miss their test over one or two tenths of one per cent. they attack the integrity of the creamery operator, which they would not do for a farm under other circumstances.

No one ever made a success by guessing, so let us stop it.

May 19.

O. S. U. Baseball

Although the Scarlet and Gray nine haven't won every ball game of the season, the following scores show a very good standing.

April 18—Otterbein, 4; O. S. U., 8.
 April 21—Jeffrey, 8; O. S. U., 9.
 May 4.—Wooster, 6; O. S. U., 6.
 May 5—Michigan, 6; O. S. U., 2.
 May 12—Ohio, 4; O. S. U., 13.
 May 19—Kenyon, 7; O. S. U., 10.
 May 24—Wooster, 5; O. S. U., 4.
 May 25—Case, 8; O. S. U., 5.
 May 26—Oberlin, 4; O. S. U., 2.
 June 2—Oberlin, 4; O. S. U., 14.
 June 8—Case, 15; O. S. U., 3.
 June 9—Kenyon, 0; O. S. U., 6.

Purdue Track Meet

The O. S. U.—Purdue track meet on May 26 resulted in a victory for O. S. U., the score being 60 1-2 to 51 1-2 points. When we consider that Purdue team defeated Illinois and was beaten by Michigan by only a very few points, we should be very well satisfied. It may be interesting to know that the captain of the track team, "Ike" Cook, is a senior Ag. "Ike" won eleven points for O. S. U., thus making a better showing than any other man on the team.

One of the late attractions at the university is the milking machine, which has been on trial for the past few weeks. The Dairy Department is not ready to say that it is an absolute success, but have no particular objections to offer thus far. It is indeed a labor-saving machine, and the university may own one if this proves efficient. The gasoline engine furnishes power for it and seems to cause no worry nor excitement to the cows from its noise. The picture in this issue shows the equipment for milking four cows at the same time.

University News

Dean Curtis, from Iowa, was visiting the O. S. U. two weeks ago investigating the agricultural extension work done there. Special appropriations for extension work has been given by Iowa to their agricultural college.

Dean Liggett, from Minnesota Agricultural College, made a short visit at the university a short time ago.

George Wiibur, president of the Ohio Livestock Association, recently visited friends at the Agricultural College.



Milking Machine Now on Trial at Ohio State University

Agricultural Extension Work

On Saturday, May 12, the Board of Control of the Ohio Teachers' Reading Circle adopted the Agricultural College Extension Bulletin for the use of its members. The board also adopted James' Practical Agriculture to be used in the study of agriculture by teachers who are reading the books adopted for the Ohio Teachers' Reading Circle.

There will be no Extension Bulletin for July and August. The next number will be issued at the beginning of the new school year.

At this time there are over eighty agricultural clubs, with a membership of over 3000.

At Monclova, Ohio (Monclova township), Superintendent Lehr has rented two acres which are to be used for experimental purposes in connection with the township high school work in agriculture.

Liberty township, Wood county, has introduced agricultural work in the second year. One half-year is given to botany and one-half to agriculture.

Superintendent A. B. Graham has given class addresses at sixteen township and village commencements.

Every indication points to having a large attendance at the summer school for the courses in agriculture and domestic science.

The State Traveling Library Department has an addition of several hundred volumes of elementary science and agriculture. Teachers need not wait for a variety of texts on these subjects next fall and winter.

A. W. McCray, a junior in the Department of Horticulture, who is making a specialty of bee keeping, has been

making some interesting observations on the honey loads that the average bee carries. He finds where bees are not loaded with honey it takes about 5,750 to weigh a pound.

Our New Possessions

A team of hackney mares was purchased for the University from Henry Wick of Youngstown, Ohio. One of these, Queen Dagmar, was sired by Barthorpe Performer 5097, he sired by Garton Duke of Connought, a very famous stallion. The second dam of this mare is Princess Dagmar, she by Dane-gelt 174, one of the most famous hackney sires of recent history. Queen Dagmar won first in class in 1899 at Ottawa, Quebec, and Sheerbrook, Canada. She is now heavy in foal to the service of Gribthorpe Playmate. This stallion was champion over all ages at the National Horse Show, Madison Square Garden in 1902. He is a stallion of very unusual conformation, beauty and action.

The other mare is a half blood sired by Lord Fireaway 2d, a hackney stallion which has sired many excellent half bloods in Northeastern Ohio. Her dam is a mare sired by Brown Wilks.

The two mares are brown in color, well mated, and will be a distinctly important addition to the teaching equipment of the Animal Husbandry Department.

Mr. Wick was very generous to the University in selling this pair and has shown much interest in our work. He has a stud of over eighty, including very high class hackneys and American-bred coach horses.

On Saturday, May 12, Professor Plumb visited Bloomingburgh, and purchased of J. M. Clever a Poland China sow sired by Ideal Sunshine. She is a very choice specimen of the breed

and due to farrow this month to the service of Darkness Perfection, one of the very best Poland China breeding boars in the country.

Arrangements have also been made to supply the department with some choice Poland China pigs to be fitted to show.

Professor Plumb attended the short-horn cattle sale of J. A. Gerlaugh at Harshman, Ohio, where he purchased for the university three very valuable animals. 2-year-old heifer, Fine Lady, was purchased for \$605. Her sire is Fine Morning and dam is Imported Lady Laura XIII. This is a show heifer of much finish, and was bid off in competition with parties who wished her for show. The roan cow, Czarina II (Imp), is also something that the university should be proud to own. Her sire was Solferno and dam was Imported Czarina. This cow is a favorite. One of the prominent Ohio short-horn breeders classed this cow as one of the best short-horns in America; \$610 does not

seem high for a cow with such merits. Julia Everett (Imp) is the roan cow that sold at C. L. Gerlaugh's sale for \$905 in 1903. Her sire is Bapton Ensign and dam, Lady Mary II. Bapton Ensign was purchased by Mr. Ladd, of Oregon, for \$4000, for whom he won distinction at the head of the winning herd at the Louisiana Purchase Exposition." Julia Everett looks good for \$505.

The Berkshire boar, University Lee 72621, was shipped to Iowa Agricultural College at Ames. He was second prize boar under one year old at the Ohio State Fair in 1903 in a large exhibit and in the possession of the University. He has been a very successful breeder, being the sire of the grand champion pen of barrows at the International in 1905. University Lee was sired by Governor Lee 2d which came from a very prominent strain of Berkshire breeding. Negotiations are on to replace this boar in the University herd.



FINE LADY

Professor Plumb attended the sale of Holstein-Friesian cattle of John Shugard & Son of Marion, Indiana, where he purchased for the University the bull, Sir Soldene Wayne DeKol 27171. This bull is seven years old and is not only a show animal, but also an excellent breeder. Seventeen of his daughters in this sale brought \$2000, an average of \$117.64. They were all young, being two years old or less.

The University also bought the cow, Janzen Angela Artis 2d 55203, the cow Aaggie DeKol 55973, and the heifer Colantha Bakker Wayne DeKol 81550. These cattle are all of the choicest breeding and specially selected individuals which will be used in the strengthening of our own Holstein blood of the University.

The Department of Animal Husbandry has recently shipped to M. F. Bugby of North Kingsville, Ohio, a Jersey bull calf sired by King's University Lad, and out of the cow Buley of Weber Farm. The breeding of this calf is very high class, and it should develop into a good breeding animal.

Preliminary plans for the new farm buildings will be submitted to the trustees on May 30. Professors Plumb and Price will make visits to several agricultural colleges during the summer to ascertain the best methods and plans for building. They will undertake to make much improvement on anything in the West.

The next meeting of the Columbus Horticultural Society will be held at the State University, Saturday, June 9, at 2 p. m. All interested are most cordially invited to attend.

The U. S. Civil Service Commission announces an examination for the position of assistant dairymen, Department of Agriculture, to be held June 13, 1906. Eight positions are to be supplied from the successful contestants, the salaries ranging from \$1400 to \$2500. O. S. U. dairymen should get busy and capture a few of these.

On Wednesday, May 16, 1906, Mr. W. I. Wood held his eighth annual sale of short-horns at the Woodland Stock Farm, at Williamsport, Ohio. There was a large crowd present and every one seemed to take a deep interest in the sale. Men were present from all parts of Ohio and from other parts of the West. Colonel Lowden, of Illinois, bought Proud Fancy, the cow who topped the scale at \$1000. Professor Plumb, Alex Argo and a small body of students attended the sale.

Prof. Lazenby gave an address on "Farm Forestry," at the May meeting of the Muskingum County Horticultural Society, at Zanesville.

The Townshend Literary Society conducted their annual commencement exercises on Friday evening, April 18, 1906. The following seniors were given diplomas for their faithful services in the literary society: E. D. Waid, N. E. Shaw, James McClintock, H. Ramsower, R. C. Donehue, C. S. Miner. After appropriate exercises, refreshments were served, followed by a social time and dance. This closes another very successful year for Townshend.

The net receipts from O. S. U. carnival was \$950. This was given for the benefit of the Athletic Association of the University.

Special Premium for Live Stock Exposition

Rosenbaum Bros. & Co., of the Union Stock Yards, Chicago, offer the specials herein enumerated, annually to be competed for at the International Livestock Exposition, for the purpose of supplementing the efforts of the exposition as an exponent of the advancement of our recognized present day celebrities in the production of the animal form by adding to the prizes that have hitherto been offered by the exposition, the breeding associations and other public-spirited individuals.

They propose to offer to the breeders and feeders in the different states an additional incentive to add further lustre to their achievements by bringing about a competition between state breeders.

THE SPECIALS ARE:

To the state which sends to the International animals that win:

1. The greatest number of points. \$500
2. 2nd greatest number of points. \$300
3. 3rd greatest number of points. \$200

These winnings are then to be turned over to the Animal Husbandry Department of the Agricultural College of the state winning, as an appreciation of the improved work that is being accomplished by the agricultural colleges in the education of farmers' sons in the science and practice of field tillage, the growing and care of crops and the science of breeding and care of feeding, directing the experiment stations receiving the money to use it in paying prizes on livestock or to successful students in judging livestock and grains, or to both, at the winter meetings, known as the "Farmers' Short Course in Agriculture," at the different agricultural colleges.

The details governing the disposition of the premiums are to be arranged by

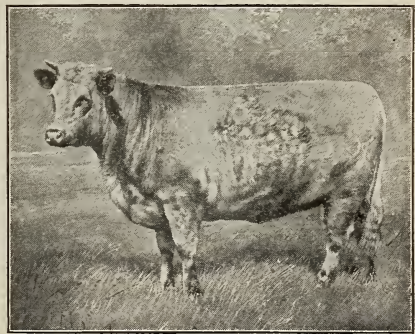
the dean and the professor of animal industry and the professor of agriculture at the college located in the successful state.

Agricultural News

U. S. civil service examinations were held June 1 and 6 to fill the position of agriculturist in the Bureau of Animal Industry at a salary of \$2700 and of assistant agriculturist in same bureau at \$1000.

The New York Agricultural Experiment Station has been carrying on an experiment regarding the effect of carbon dioxide, admitted under pressure, on fresh milk. It was noticed that the milk thus treated at a pressure ranging from sixty to seventy pounds did not sour or curdle readily, keeping from ten days to two weeks at a temperature of 60 to 70 degrees F. Aside from prolonging its keeping power, the milk, when carbonated, makes a very palatable and refreshing beverage.

Local consumption of horses in Chicago during the month of April far exceeded that of the same month of 1905. During last April local buyers purchased 2816 horses on the Chicago market, whereas during the corresponding period of last year they bought only 969.



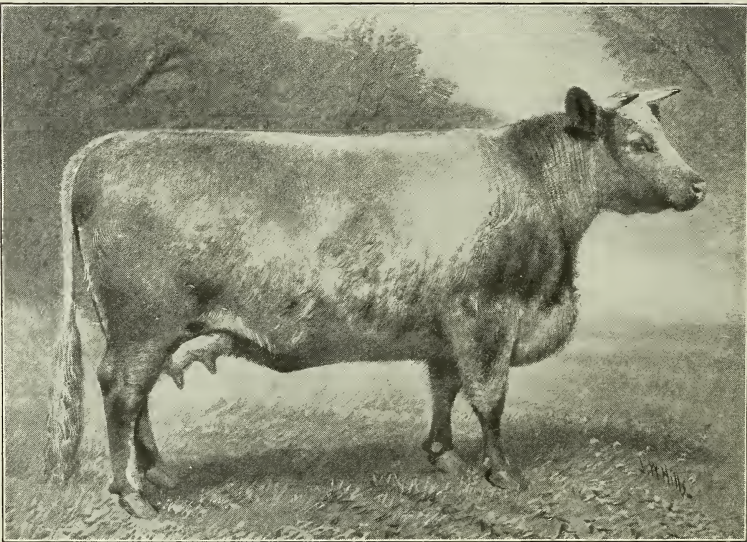
One of Ohio State's New Possessions
From the herd of J. A. Gerlaugh

A Girl Graduate's Ambition

A Kansas girl graduate who had been given the theme, "Beyond the Alps Lies Italy," promulgated the following:

"I do not care a cent whether Italy lies beyond the Alps or in Missouri. I do not expect to set the river on fire with my future career. I am glad that I have a very good education, but I am not going to misuse it by writing poetry or essays on the future woman. It will enable me to correct the grammar of any lover I may have, should he speak of 'dorgs' in my presence or 'seen a man.' It will also come handy when I want to figure out how many pounds of soap a woman can get for

three dozen eggs at the grocery. So I do not begrudge the time I spent in acquiring it. But my ambitions do not fly so high. I just want to marry a man who can lick anybody of his weight in the township; who can run an 80-acre farm and who has no female relatives to come around and try and boss the ranch. I will agree to cook dinners for him that won't send him to an early grave and lavish upon him a wholesome affection, and to see that his razor has not been used to cut broom wire when he wants to shave. In view of all this, I do not care if I get a little rusty on the rules of three and kindred things as the years go by."—Kansas City Journal.



Czarinia 2d

Our National Debt

Our largest debt as a nation is, of course, the interest-bearing public debt, which now amounts to \$895,000,000. Our wisest financiers agree that it is necessary for a country to pledge the future, to charge another generation with a part of the burden which it is not convenient for us to bear. So we "negotiate" loans. We borrow the money either at home or abroad. Our first loan came from France and was for the sum of \$181,500. Since then we have borrowed, of other nations and of ourselves, the enormous sum of \$6,700,000,000—and never once "fallen down" when interest was due. Imagine the money we have paid to ourselves or to other nations since the close of the civil war, when our public debt amounted to \$3,350,000,000!—Leslie's Weekly.

Growth of Telephone System

The American Bell telephone system of the United States has more subscribers, more mileage of wire and more traffic than the telephone systems of Great Britain and all continental Europe combined. The following figures show its growth in six years.

Number of telephones January, 1900, 1,580,101; January, 1903, 5,698,258.

Number of stations January, 1900, 675,761; January, 1903, 2,528,715.

Miles of wire January, 1900, 1,518,609; January, 1903, 6,043,518.

Officers and employes January, 1900, 20,599; January, 1903, 87,213.

Conversations January, 1900, 1,708,800,000; January, 1903, 4,479,500,000.

The net output of telephones during 1905 was 1,217,694, being the greatest increase in any one year in the history of the company.—New York Sun.

Bee-Keeping As An Occupation

ARTHUR H. M'CRAY.

In view of the fact that apiculture or bee-keeping has been receiving considerable attention recently, by reason of the announcement of the course in apiculture to be installed in the winter term in horticulture, a few words concerning the extent and future promise of this new industry may be of some interest to readers of THE STUDENT. Apiculture or the keeping of bees is carried on mainly for two products of the hive; first, honey, either comb or extracted, and, second, queens for the removal of blood in the colony, just as pure blood is maintained in livestock. In comb honey, production along modern lines, the honey is marketed now altogether in the small section boxes, holding about one pound. There is a notion all too prevalent over the country that this sort of honey, in such little section-boxes, is manufactured. This is as far from being true as the announcement, which we sometimes hear, of hens' eggs being artificially produced. The A. I. Root Company, of Medina, Ohio, has had standing offers for several years of \$1000 to any person who will bring them samples of comb-honey in sections, sealed over by machinery, in such a manner as to deceive the ordinary observer. They will send circulars of their offer as above to anyone so desiring same. In the production of extracted honey the upper case or super, instead of containing pound-section-boxes, has frames like the lower part or brood-chamber, except that they are not so deep, i. e., so high. After having the combs once built out by the bees, they may be filled again and again by the bees, the honey being removed by shaving the cappings of the cells with a special uncapping knife, putting the uncapped frame of honey in a honey

slinger or extractor, in which the honey is thrown out of the cells by the centrifugal foci, due to the rapidly revolving framework supporting the frame of honey on the inside of the extractor. The production of comb and extracted honey may be carried on conjointly, but the rearing of queens is a business by itself. The writer had the satisfaction of rearing some queens last summer from an Italian red clover queen, the progeny of which particular strain of bees are supposed to have tongues long enough to reach the nectar in the long corolla of the red clover. The rearing of queens is certainly a fascinating pursuit, even if there were no profits to be gained from the operation. The modus operandi is in general as follows: In the first place, make a colony queenless, so that we may give that colony some incentive to rear another queen, for let it be known that the queen is the only fully developed female in the hive, being the mother of all the other bees, and in a colony of bees in normal condition, only one queen is found. The queen is reared from the larvae of what would otherwise become a worker bee, by the nurse bees feeding such worker larvae of special food, different from that given the larvae which are to develop into workers. This special green food is known as "royal jelly." Now, by going through the colonies at swarming time, which is the best time to rear queens, we may find, without trouble, a queen cell containing this royal jelly. By robbing this cell, dipping it out with a toothpick, we may secure enough to give a small quantity to about twenty cells, which we have previously moulded by dipping a stick whittled to the exact size and shape of the bottom of a queen cell, into melted wax, and mounting them before cool, onto a frame so that they hang mouth downward in the

hive, as we find them naturally. Now we have our queen cell artificially made, and having its small quantity of royal jelly, the whole is acceptable to the bees, as cells made by the bees themselves. The next step is to go to our colony containing the queen of superior stock, from which we wish to breed, take out a frame containing larvae, not beyond a certain age, and by means of a toothpick, gently lift the tiny larvae out of its worker cell into the queen cell, which we have prepared, after which the frame is to be placed in the colony made queenless, which colony will proceed to further feed the queen cells with the royal jelly and we may say that we have in no sense changed the course of nature, for, instead of what would have been a busy toiler of the hive, there will now come forth from this cell a member whose duty it is to perpetuate the species.

Now a few words as to the extent of bee-keeping. Statistics tell us that there are manufactured and sold in the United States annually anywhere from forty to sixty million section honey boxes. Estimating fourteen ounces to each section as an average, there is marketed annually fifty million pounds of comb honey, and reckoning extracted honey as being produced in twice the quantity of comb, the total aggregate reaches one hundred to one hundred and twenty-five million pounds of honey, representing a money value of eight to ten million dollars. The bee-keepers of the United States are organized into the National Bee-keepers Association, with a membership of somewhere near two thousand. This association meets annually and discusses questions of interest to bee-keepers. Besides this national organization, many of the States have similar associations. Thus, in Ohio, we have the Southwes-

tern Ohio Bee-keepers Association, through the efforts of which body the Legislature, two years ago, passed what is known as the foul brood law, which provides for the appointment of a county inspector of apiaries, to examine and apply remedial measures to colonies of bees infected with the contagious disease known as foul brood. Professor Frank Benton, of the Bureau of Entomology at Washington, is now making a tour of the Orient in search of new races of bees, with a view to bringing any that give promise of usefulness as honey-gatherers to the United States.

Now a few words as to the profits of bee-keeping may be of interest. This, of course, will depend upon the man and the extent to which he engages in the business.

Adam Grimm, who came from Germany to this country in 1894, had, at one time, as high as 140 colonies of bees and personally supervised all work done with his bees. He was very methodical; kept a strict account of his business and showed, in a single year, \$10,000 as a result of his bee-keeping.

W. S. Coggsell, in some ways the most remarkable bee-keeper in the United States, and whose helpers are known as "lightning operators," owns and operates from 3000 to 3200 colonies in New York, Arizona, Colorado and Cuba. One of Coggsell's "lightning operators" and two boys are on record as taking, one afternoon, in one hour and a quarter, 1400 pounds of extracted honey. Other records are 700 pounds in one hour for two men and 2500 pounds in a day for one operator and two boys. The reader may infer as to the profits accruing to this successful bee-keeper.

Mr. J. F. McIntyre embarked in the bee-keeping business at Ventura, Ca.,

with 100 colonies. The first season, which was not a good one, he made \$800. In 1886, with the help of his wife, he took 1200 pounds from 240 colonies, the proceeds of which amounted to \$2000 cash.

The above examples will show what may be done financially in the keeping of bees. But this, of course, is only one side of the question. Like every other business, bee-keeping has its failures, as well as its successes.

W. S. Coggsell, mentioned above, if I mistake not, quite largely built up his extensive business by buying out cheaply those bee-keepers who had injudiciously ventured into the business without proper knowledge or too deeply at once.

In conclusion, we quote from W. Z. Hutchinson, of Flint, Mich., editor of the Bee-keepers' Review:

"Bee-keeping is not an occupation in which one can easily become wealthy. It can be depended on to furnish a comfortable living and perhaps enable a man to lay up a few thousand. Fortunately, however, the professional man's happiness bears little relation to the size of his future; and the man with the hum of the bees over his head finds happiness deeper and sweeter than ever comes to the merchant prince with his rares and his thousands."

In the Valley of the San Joaquin

C. A. MINER.

Within the past three decades wonderful changes have taken place in the fruitful valley through which the San Joaquin river wends its way. The floods from the Sierra Nevada mountains have been guided through a network of canals and ditches transforming a desert into a land of flowers and fruits.

Probably more than one-half of the irrigated land in California lies within the borders of this valley which is approximately 250 miles in length, with an average width of sixty miles.

The average rainfall is ten inches a year, which occurs during the months from September to June. Science teaches us that sunshine is quite necessary to the proper development and perfection of fruit. Surely there is no lack of sunshine upon this wonderful garden. The winters are cool, at times frosty, yet semi-tropical vegetation thrives luxuriently.

There are no severe storms and snow is practically unknown away from the mountains. The days are warm in summer, yet the evenings are delightfully cool and pleasant.

If the present production be but suggestive, who may foretell what harvests will be gathered when all the available lands shall have been settled? Water is both plentiful and cheap. In the vicinity of Fresno the price is 62½ cents per acre per annum.

The soil is of remarkable depth and generally productive, though it varies greatly in texture.

Practically all of the more settled districts are devoted to the growing of fruit. Raisins, table and wine grapes, oranges, apricots, peaches, pears, figs, olives, lemons, nectarines and perhaps other fruits are grown by the tons upon tons for commercial purposes, while many more are raised for home consumption.

Berries and vegetables are easily grown and are both productive and profitable. Many comparatively rare fruits and vines attain perfection in this climate. The home grounds are scarcely complete without the almond, English walnut, date palm, loquat and palmetto trees. Dewberries and logan

berries have an important place in most gardens.

Alfalfa is the leading hay crop and is much used for pasturage. Some wheat and barley is produced, but little corn. A highly carbonaceous food is quite unnecessary.

The honey bees are busy here as elsewhere. Last season thirty-two carloads of honey were shipped from a single county.

The sale of hembee and crude oil amounts annually to millions of dollars each. The lumber is principally pine and redwood.

Truly, the resources of this valley are great. If we may believe the reports compiled by the Chamber of Commerce the sales from fruits and fruit products alone last season amounted to more than \$8,000,000 in a single county, or more than \$100 for every man, woman and child therein.

Clean culture is practiced and to drive through the country gazing in rapture upon orchards and vineyards alternately as far as the eye can see is indeed a rare pleasure. Such a treat mankind will not willingly forget.

Throughout the valley several towns and cities have arisen with the growth and prosperity of the country. Among the most important are Stockton at the gateway on the north, a thriving commercial center. Fresno, centrally located, is the raisin center of the valley; and at Bakersfield, the southern terminus, are located the most productive oil wells.

Both the Santa Fe and Southern Pacific railroads traverse the valley from north to south, thus a good outlet for shipping is afforded. Refrigerator cars make possible today long shipments which not long since would have resulted in great loss to shippers.

The San Joaquin valley is yet in its infancy. The outlook is indeed most promising.

From box 861, Fresno, Cal.

Pollination in Orchards

M. CARROTÉS.

The wholesale failure in the setting of fruit is often called self-sterility. A self-sterile tree is one which is self-unfruitful; it must have other varieties near it in order to bear well. But it appears that self-sterility in orchard fruits is often confused with the unfruitfulness resulting from other causes. It would, therefore, be well to clear away this confusion at the outset in order that the discussion of self-sterility may be better understood. The sufficiency which sometimes make trees unfruitful, which are often confused with the unfruitfulness resulting from self-sterility, are (1) heavy wood growth; (2) frosts; (4) unfavorable weather during the blooming season. It should also be said that a tree is not self-sterile when it does not blossom.

SELF-STERILITY.

There are some trees which blossom full, year after year, but set little or no fruit, even in the most favorable seasons. These trees are usually in solid blocks or at a distance from any other variety. Planting near them other trees of the same variety does not make them fruitful; but if trees of other varieties are planted near, they are often made fruitful. A self-sterile variety is one which is unable to set fruit when alone. In order to be productive, it must be planted near some other variety. Two varieties very commonly self-sterile are the miner and the wild goose plums. Large blocks of the Kieffer pear and some of the great prune orchards on our Pacific coast have been unprofitable from this cause. Besides these striking examples, there is reason for believing that much of the unsatisfactory fruiting of orchards all over the country is due to the isolation or indiscriminate mixing of varieties.

The main cause of self-sterility is that the pollen of a variety is unable to fertilize the pistils of that same variety.

Toff and Waugh have shown that self-sterile varieties of native plums often have a large per cent. of pistils, which are too weak to develop into fruit. This could not be a general cause of self-sterility, however, for self-sterile varieties can usually be made fruitful by planting other varieties near them. This shows that there are enough sound pistils on the tree for a good crop of fruit, provided they receive the right kind of pollen.

Again, the blossoms of some varieties may produce but a small amount of pollen. When these varieties are planted alone, they may not have enough pollen to set a good crop, even though the pollen is fertile on its associated pistils. The amount of pollen which flowers produce is greatly modified by weather conditions and the vigor of the tree. Finally, the stamens and pistils of a tree may not mature simultaneously, which would make a tree unfruitful unless pollen is supplied from other sources.

The practical bearing of the self-sterility problem is this: There are certain varieties of fruit which we wish to grow largely for the general market, but we find that they are not productive when planted alone. They need the pollen of other varieties to make them fruitful. Then we must do what some of our most intelligent fruit-growers have been doing for years—plant other varieties near them as pollenizers.

Self-sterility is not a constant character without variety. It is influenced by the conditions under which the tree is grown, as are the size, shape and color of the fruit. The adaptation of a variety to soil and climate has much to do with its self-fertility, and if a tree is poorly nourished it is more likely to be

infertile with its own pollen. No one can separate varieties of fruit into two definite classes—the self-sterile and the self-fertile. Thus Bartlett and Kieffer are often self-fertile, but there are orchards of both which are self-sterile.

The following is a list of those common varieties of pears which are more or less self-sterile: Bartlett, Lawrence, Clapp, Columbia, Kieffer, Sheldon, Pound and a few others. Those varieties generally self-fertile are: Bosc, Diel, LeConte, Manning, Elizabeth, Seckel, Tyson, Flemish, Beauty, etc.

Of the apples the self-sterile are: The Gravenstein, Rambo, Northern Spy, Norton Melon, King, Red Astrachan, Roxbury Russet, Spitzenburg, Winesap. Those mostly self-sterile are: Baldwin, Greening, Smith, Cider, Red Astrachan, Ben Davis, Codlin, Oldenburg.

Among the plums the varieties more or less self-sterile are: Drop, French Prime, Peach, Miner, Ogon, Italian Prime and Marianna. Some of those mostly self-fertile are: DeSoto, Burbank, Bradshaw, Lombard, Green Gage, Damson's Robinson.

In selecting the pollinizer there are two points to be considered: These are simultaneous blooming and mutual affinity. The first and most important point is that the two shall blossom together, since the only way in which a pollinizer can make a self-sterile variety fruitful is by supplying it with pollen. This means that the pistils of the self-sterile variety must be receptive when the stamens of the pollinizer are ripe, which is possible only with simultaneous blooming. The other point is the mutual affinity of the two; that is, will the pollen of the pollinizer fertilize the pistils of the self-sterile variety readily and also develop them into high

grade fruit? At present little is known about this matter and a little experimenting will answer this question. Experiments are being carried on at many experiment stations with comparatively good success.

The number of trees of the pollinizer would depend largely on whether it has value in itself. Some growers plant every tenth row to the pollinizer, but the proportion should usually be greater. This might be enough if the weather during the blossoming season is very favorable for cross-pollination by wind and insects; but if it is showery the pollinizers should be more abundant in order that cross-pollination may be more general during the bright weather between showers. For pears, if using Garber or LeConte to pollinate Kieffer, every third row may be the pollinizer; if using Bartlett, every other row. For apples, cherries and domestic or Japanese plums, the same proportion may be used. In a commercial orchard, the pollinizer should be planted in a solid row.

The pollen of one variety is carried to the pistils of another in two ways: by the wind and by insects. There are many kinds of insects which aid more or less in the cross-pollination of orchard fruits, principally bees, wasps and flies. Of these the wild bees of several species are probably the most important. In a wild thicket of plums or other fruits, they are usually numerous enough to insure a good setting of fruit. But few if any wild bees can live in a large orchard, especially if it is well tilled. As the extent and thoroughness of cultivation increase, the number of these natural insects aids to cross-pollination decrease; hence, it may become necessary to keep domestic honey bees for this purpose.

Enrollment in College

Enrollment in the College of Agriculture and Domestic Science 1905-06 by states and counties.

Ohio	293
Indiana ..	3
Kentucky	2
Massachusetts	1
New Hampshire	1
New Jersey	1
New York	1
Oregon	2
Pennsylvania	4
South Carolina	1
Cuba	1
Porto Rico	1
Argentine	3

Total315

The total enrollment in college this year has been 315, which is an increase of forty-three over the enrollment of last year. The following statistics will show the enrollment of the College of Agriculture and Domestic Science for the past fifteen years:

	Agr. & H. Courses (Four-year)		Agr. Course (Two-year)	Dairy Course	D. Sc. Courses				Total Agr. & D. Sc. College	Total Enrollment Ohio State Univ.
1891-92	..	5	35	..	..	..	..	40	668	
1892-93	..	16	31	..	..	..	..	47	794	
1893-94	..	19	52	..	..	..	..	71	800	
1894-95	..	38	..	11	..	..	..	90	810	
1895-96	..	41	34	8	..	..	..	83	969	
1896-97	..	33	44	13	7	..	..	97	1019	
1897-98	..	58	41	29	16	..	..	144	1099	
1898-99	..	53	53	19	39	..	..	164	1140	
1899-00	..	53	42	23	39	..	..	157	1252	
1900-01	..	64	49	50	47	..	..	210	1449	
1901-02	..	63	51	40	44	..	..	198	15.5	
1902-03	..	88	71	40	44	..	..	243	1735	
1903-04	..	108	70	32	36 1/2	*8	..	256	1803	
1904-05	..	124	62	23	48	2	13	27	1835	
1905-06	..	149	77	30	43	5	11	315	20.4	

| Post-graduates College of Agriculture and Domestic Science.

*Special students College of Agriculture and Domestic Science.

The increase from an enrollment of five in 1892 to 182 in 1906 in the four-year courses of the college is especially



Map of Ohio Showing Enrollment of Students

practically all of those who can afford them have country homes on a greater or lesser scale. It is very evident that the number of estates will increase in number, especially in certain picturesque parts of the country near our large cities of wealth.

To build up and properly manage these estates, there comes a demand for men best fitted for such work. A manager, or as he is more often called, superintendent, must have a thorough knowledge of agriculture, horticulture, animal husbandry and the general knowledge that a man brought up on the farm usually has. The weak point in many men is often the lack of plain common sense—a hard expression to define, but if one lacks it, others are not long in finding it out.

The work of a superintendent is by no means easy, for he must continually look ahead in order to keep the work in some definite arrangement and all workmen busy during those periods of the year when work is naturally slack. On some of the larger estates the work is systematized and divided among different departments, with the superintendent at the head, much the same as large manufacturing companies are organized. As a rule, the owner of an estate is a very busy man, fond of traveling, so that practically all of the responsibility as regards the success of an estate rests on the shoulders of the superintendent. Surely the agricultural college graduate is the man properly fitted for such work.

One of the first questions that comes to one's mind is to what extent one is reimbursed for such work. Well, that depends for whom you are working and how extensive the estate. Superintendents are a very well paid and satisfied class of men when all things are considered. In money alone salaries run from

\$1000 to \$1500 per year, but the salary is only a part of what one actually receives in an indirect way. For instance, you are given a first class house with no rent to pay or fuel bills to pay, a generous supply of garden produce, milk and cream, livery service at any time and many valuable gifts, as at Christmas time, that only the very rich know so well how to give. To most, however, the greatest pay comes in the satisfaction that a true lover of nature feels when he has the means whereby to do and plan with the world's best without being handicapped for finances or opportunity. Think of the satisfaction a stock fancier has in having under his care and supervision the finest animals that money can secure. Such a man feels far more interest and receives more pleasure than his employer who pays for them, but seldom really feels the true beauty of his stock. Think again of the pride a man would take in a beautifully laid out and planted estate if he loved outdoor art.

From first thought it might appear that a position as estate superintendent would be hard to secure; however, as in many other professions, there is an unsatisfied demand for honest, competent men. Now there is no reason why these positions ought not to be occupied by agricultural college graduates, as they are the only men trained along that line and the only class of men who really love and like such work outside of the financial part.

Of the many vocations open to agricultural college men, this one vocation ought to come as a strong appeal. Those who have been fortunate enough to see some of our finest estates, especially in the East, have certainly been impressed for their lifetime and those who have not as yet been so fortunate should not miss the first opportunity.

Alumni Notes

C. A. Miner '05, (Hort. and Forestry) who has an article in another column, is located at Fresno, Cal. He writes Prof. Lazenby "that his trip west was one of continued pleasure," and that "I have a fine position with the nursery firm of S. W. Marshall & Son, who have a well established and prosperous business."

W. R. Beattie, '94, a graduate of the Department of Horticulture, has written a very instructive bulletin on "The Home Vegetable Garden." It is published by the U. S. Department of Agriculture as Farmers Bulletin No. 255. Mr. Beattie has the position of assistant horticulturist in the Bureau of Plant Industry.

Archie Newcomb, ex-'07, is married and running a dairy farm at Burton Ohio. He has been recently sick with scarlet fever.

Charles Kent, ex-'08, is attending school at Oberlin.

Tom Gillespie, ex-'07, is at Beaver Falls, Pa., running his father's farm.

Eldo Morris, who was a student in the short dairy course this past winter, is assistant manager of French's creamery at Wilmington, Ohio.

Elmer Cook, who graduated from the short course in agriculture in 1905, has been working at the Illinois experiment station at Urbana, Ill. Professor Mumford has been conducting a series of feeding experiments on the comparative value of different feeds and Mr. Cook has been the chief feeder under Professor Mumford's supervision.

Albert Burgess, a graduate of the short course in agriculture in 1905, is now working at the Iowa experiment station.

Thad Carter, ex-'07, is running his father's farm at Macedonia Depot, Ohio.

S. B. Stowe will work this summer in the Forestry Department of the Ohio experiment station at Wooster.

Senator R. W. Dunlap, B. Sc. (Agr.) 1905, is a Republican candidate for nomination as state dairy and food commissioner.

"Tiffy" Gamertsfelder left school at the close of last term to help superintend his father's farm near Tiverton, Coshocton county.

G. E. Raredin, ex-'06, has purchased some land near Wheelersburg, Ohio, which he is farming.

On May 26 the O. S. U. received a Berkshire boar from A. J. Lovejoy & Son, of Roscoe, Illinois. This boar was sired by Masteripece, a boar that sold recently for \$2500, the world's record price for Berkshires. This new hog is out of the sow, Lee's Lustre Lady, 88,-145, from a litter of eleven pigs. This gives the university a Berkshire boar of choicest breeding.

On May 13, during the agronomy class which recites at 11 a. m., and when the thermometer registered 92°, a very interesting discussion went as follows:

Professor Ford—"Mr. Green, mention some of the important products of corn."

Mr. Green—"Glucose, and molasses, a-n-d corn silk, a-n-d corncob pipes,

Professor Ford, interfering—"Mr. Collison, can you name any other important products of corn?"

Mr. Collison—"Alcoholic liquors, such as whisky."

Professor Ford (in his usual serious mood)—"Yes, that's right; I'm sorry we haven't some samples on hand this morning."

Book Reviews**TYPES AND BREEDS OF FARM ANIMALS**

—By Charles Sumner Plumb, professor of animal husbandry in the College of Agriculture of the Ohio State University. Ginn & Company, publishers, Boston, New York, Chicago, London, San Francisco, Atlanta, Dallas, Columbus.

Types and Breeds of Farm Animals supplies the need for an up-to-date discussion of the several types and breeds of horses, asses, mules, cattle, sheep, goats and swine. This volume describes the commonly accepted types, as, for example, draft or speed type of horse, dairy type of cattle and bacon type of swine. It includes discussion of the original habitat, of breed development, European history, special American history, work of pioneer breeders, famous animals, families or tribes, breed characteristics, breed and individual records, as, for example, milk cows, butter, or speed horses, etc. Many noteworthy records are given and numerous illustrations of famous animals shown. A comprehensive table of contents and an index form an important part of the book.

The work is primarily intended for students in agricultural colleges and universities. Breeders and feeders of animals, however, will find this volume a valuable reference work.

DISEASES OF SWINE.—By Dr. R. A.

Craig, professor of veterinary medicine at the Purdue University. A concise, practical and popular guide to the prevention and treatment of the diseases of swine. Illustrated. 5x7 inches 300 pages. Cloth. Price 75 cents. Orange Judd Company, New York.

In no other class of farm animals is so little attention given the prevention of diseases as in swine, and as a result, the per cent. of loss is about twice as

great as it is in other species. In discussing the different diseases, the causes and preventive measures are given special attention by the author. The book is conveniently divided into four parts. Part I treats on general diseases, their diagnosis and the methods of administering medicines. With the discussions on each disease are given its causes, symptoms, treatment and means of prevention. The succeeding parts treat on surgical diseases, infectious diseases and parasitic diseases. Every part of the book impresses the reader with the fact that its writer is thoroughly and practically familiar with all the details upon which he treats. All technical and strictly scientific terms are avoided, so far as feasible, thus making the work at once available to the practical stock-raiser, as well as to the teacher and students.

PROFITABLE DAIRYING. — New book.

Just issued. By C. L. Peck. A practical guide to successful dairy management.

The treatment of the entire subject is thoroughly practical, being principally a description of the methods practiced by the author, and which, after a lifetime of experience and study, he has found most advantageous. Separate chapters are devoted to the importance of the dairy, physiology and secretion of milk, future of dairying, dairy breeds, selection of a breed, the dairy cow and the dairy sire, dairy standard, care and feed of the dairy cow, care of the calf, milking, when to have cows come fresh, feeds and their value, care of the milk, device for ripening cream, churning, marketing dairy butter, the dairy barn, silo and silage, miscellaneous topics, necessary appliances, general hints, dairy remedies. A specially valuable part of this book consists of a minute description of the far-famed model dairy

farm of Rev. J. D. Detrich, near Philadelphia, Pa. On this farm of fifteen acres which twenty years ago could not maintain one horse and two cows, there are now kept 27 dairy cattle, in addition to two horses. All the roughage, litter, bedding, etc., etc., necessary for these animals are grown on these 15 acres, more than most farmers could accomplish on 100 acres. Illustrated. 5x7 inches. 220 pages. Cloth. Price \$75. Orange Judd Company, 439-441 Lafayette street, New York, N. Y.

CLOVERS AND HOW TO GROW THEM.—New book. Just issued. By Thomas Shaw.

This is the first book published which treats on the growth, cultivation and treatment of clovers as applicable to all parts of the United States and Canada, and which takes up the entire subject in a systematic way and consecutive sequence. The importance of clover in the economy of the farm is so great that an exhaustive work on this subject will, no doubt, be welcomed by students in agriculture as well as by all who are interested in the tilling of the soil. After thoroughly explaining the principles and practice of successful clover cultivation in general, the most important species and varieties are discussed in detail. With each are given its varieties, pasturing, harvesting for hay, saving seed, renewing, value as fertilizer. Thus each chapter is complete in itself. Illustrated. 337 pages. Cloth. Net \$1.00. Orange Judd Company, 439-441 Lafayette street, New York, N. Y.

Since the passing of a law in Massachusetts prohibiting the dealing in worn out horses, auctioneers have been officially warned not to sell horses suffering from ailments included in the "cruelty to animals list." The penalty for selling a horse so afflicted is punishable by a fine of not less than \$5 nor more than \$100 for each offense. Ohio could use a law of this kind to a good advantage.

Fine Ground Phosphate Rock

Contains more Phosphorus and Phosphoric Acid THAN GROUND BONE MEAL and cost 50 per cent. LESS. Prices, Pamphlets and Testimonials on application.

ROBIN JONES,

No. 14 Steger Building,
NASHVILLE, TENN.

Learn Telegraphy and R. R. Accounting

\$50 to \$100 per month salary assured our graduates under bond. You don't pay us until you have a position. Largest system of telegraph schools in America. Endorsed by all railway officials. **Operators always in demand.** Ladies also admitted. Write for catalogue.

MORSE SCHOOL OF TELEGRAPHY,

Cincinnati, O., Buffalo, N. Y., Atlanta, Ga.,
La Crosse, Wis., Texarkana, Tex., San Francisco, Cal.



W. & W. Sewing Machines are used in the Domestic Science Department of the Agricultural College of Ohio.

Clay, Robinson & Co.

Live Stock Commission

Chicago
Denver

South Omaha
So. St. Joseph

Kansas City
Sioux City

So. St. Paul
East Buffalo

The best of men and methods in each department at all houses.

YOU ARE INVITED TO VISIT

BAKER ART GALLERY

STATE AND HIGH STS.

For the FINEST Photos

The only Gold Medal awarded an American Photographer
at the Paris Exposition

Special Rates to Students

America's Leading Horse Importers

At the 1905 International Live Stock Exposition Won the
Greatest Victory of the Age.

ROSEMBERG—Grand Champion Percheron Stallion.

APROPOS—Grand Champion French Coach Stallion.

18 First Prizes.

43 Prizes in all.

Champion Group of Percheron Stallions
over three years old.

Champion Group of Percheron Stallions,
under three years old.

Champion Group of French Coach Stallions.

Champion Group of Belgian Stallions,

THE BEST HORSES IN THE WORLD

The First Prize Winners and Champion Stallions at all the leading shows of both
Continents are now For Sale in the stables of

McLAUGHLIN BROS.

COLUMBUS, O.

KANSAS CITY, MO.

ST. PAUL, MINN.

If you saw it in THE STUDENT, tell the advertiser so.

THE PHOTOGRAPHS

MADE BY

**INNIS &
KIEFER**

199-201 S. HIGH ST.

are the best that experience, skill and the knowledge of that which is artistic can produce.

The highest award over all Columbus and Central Ohio Photographers for four successive seasons is one of the many proofs of the exclusiveness and quality of our work.

A. H. HARMON,



**HIGH-GRADE
MERCHANT
TAILORING**

POPULAR PRICES

**GREAT
SOUTHERN
BUILDING,**

COLUMBUS, O.

CITIZENS PHONE
4958

BERNARD W. PAYNE

MORTON McDONALD

**Payne-McDonald
Hardware Company**

1204 North High Street

Telephone 2 on 366

COLUMBUS, OHIO

**The Berlin Printing
Company**

PRINTING

OF EVERY DESCRIPTION

79-89 NORTH THIRD STREET

TELEPHONE

CITIZENS . . . 6157

10 Per Cent.
Discount to
Students

Stylish Clothes

Do you enjoy the luxuriousness of having your clothes made to order? If you do and appreciate High Grade Tailoring at reasonable prices, we're at your service. We're Tailoring experts and we bow to no superior talent in the Tailoring Business

**HIGH STREET
TAILORS**

SMART TAILORS

166 North High Street

LONG & KILER'S

Original Bookstore of O. S. U. and managed by University
Graduates

We are Extensive Dealers in

SECOND HAND BOOKS

which means a great saving to the student

LARGEST FOUNTAIN PEN DEALERS IN THE CITY

BEAUTIFUL LINE OF O. S. U. PINS

Removed from Main Building O. S. U.

ELEVENTH AVE. AND HIGH ST.

**228 to 230
North High Street**



Popular Prices

Bucher Engraving Co.

COLUMBUS, OHIO

Make engravings of all kinds.
A large corps of competent opera-
tors and artists enable us to make
work just a little better than you
are used to getting. We have
some pretty samples you can have
for the asking.

Bucher Engraving Co.

COLUMBUS, OHIO

80½ North High St.

Our Advertisers are Reliable. Patronize them.

Profitable Sheep Dipping

The profitable dipping of sheep depends upon the preparation used. Tobacco, sulphur and lime preparations are not only injurious, but they deposit a slimy substance on the body which leaves the wool dirty and lessens its value.

Chloro-Naptholeum Dip

and disinfectant will not injure or hurt the animals, and it will not leave grease or slime on the animals which may result in harm, and it is non-poisonous.

Another great gain from using **Chloro-Naptholeum Dip** is that a tip is formed on the staple that protects it from the waisting effects of the hot sun, binds the fibres together, prevents dust and other matter from getting into the wool so that the staple is kept clean and bright.

Not only does **Chloro-Naptholeum Dip** and disinfectant instantly destroy all ticks, lice and cure scab, but it heals the skin, makes the wool grow again in the bare spots and stimulates and improves its growth.

SPECIAL OFFER

Send me your name and address, and I will ship a trial gallon giving you the privilege of using it for 30 days. If it does the work remit to me \$1.50 to pay for it. If it fails notify me and I will tell you where to ship what is left at my expense. I assume all the risk and if **Chloro-Naptholeum Dip** cannot sell itself by doing the work you want done, there is no sale. Address to-day

E. TAUSSIG, President,

WEST DISINFECTING CO.

12 East 59th St.

New York.



Chr. Hansen's DANISH

Butter Color

Cheese Color

Rennet Extract

Lactic Ferment

are acknowledge by all leading
Dairy and Cheese authorities the

STANDARD OF THE WORLD

Chr. Hansen's Laboratory,

P. O. Box No. 1052 LITTLE FALLS, N. Y.

STUDENTS

Will receive a cordial welcome at

KILER'S

Headquarters for Everything
Needed by the Student

Kiler's Pharmacy

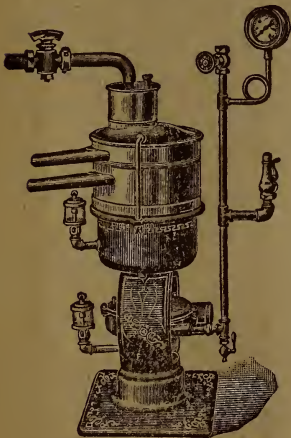
1441 N. High
Cor. Eighth Ave.

Aseptic Soda Water

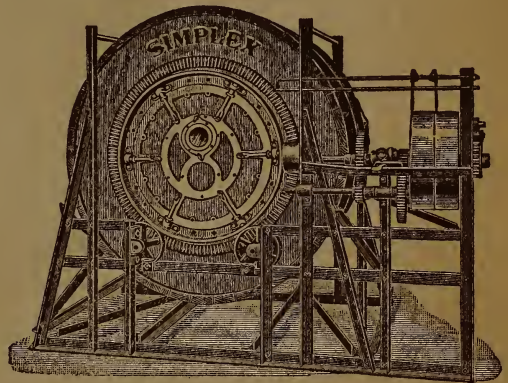
We are complete outfitters of all plants for handling milk products. If you are in the dairy manufacturing business in any capacity and want to keep up with latest and best methods, or if you are thinking of going into it, the first thing to do is to get into communication with us. We are at your service in the planning, building and equipping of Creameries, Cheese Factories, Sanitary Milk Plants and Private Dairies. Our experience in this line is worth money to you, yet it costs you nothing but the asking.

CREAMERY PACKAGE MFG. CO.
182 TO 188 E. KINZIE ST.
CHICAGO

TWO OF OUR SPECIALTIES



"SIMPLEX" Link-Blade Cream Separator.



"SIMPLEX" Combined Churn and Butter Worker.

We manufacture other specialties for use in creameries, cheese factories and dairies
"SIMPLEX" Regenerative Pasteurizer, "B. & W." Heaters; Check Pumps and Steel Vats
"FACILE" Babcock Milk Testers; Sprague Continuous Pressure Adjustable Cheese Presses, &c.
Send for our general illustrated catalogue.

D. H. BURRELL & CO., Little Falls, N. Y

IN YOUR PLACE

We try not to forget that, were we in your place, we would want to know the reasons why Tubular Cream Separators are the most efficient, durable, and easy to operate.

The closer skimming done by Tubulars is not a miracle, but is merely the result of a better mechanical design than is found in any other separator.

Tubular bowls generate over twice the skimming force any other bowl can produce, consequently, Tubulars skim at least twice as clean as any other separator. And, Tubulars generate this double amount of skimming force, because Tubular bowls are long and slender, turning twice while other bowls turn once, without traveling at any greater circumferential velocity than slower bowls of greater diameter.

Just as one horse can travel twice around a half mile track in the same time another horse takes to travel once around a mile track, so a slender Tubular bowl can turn twice while a bowl twice as wide turns once. One horse goes no faster than the other—neither does the steel in the slender Tubular bowl move any faster than the steel in a wider, slower bowl. But, because the Tubular bowl turns twice while other bowls turn once, the Tubular bowl generates twice the skimming force and thus skims twice as clean as other.

This is the interesting and scientific reason why Tubulars are the most efficient skimmers. We know you will not forget Tubular superiority, now that you understand the reason.

Write for our complete catalog—and learn some other advantages belonging, by patent rights, exclusively to Tubulars.

The Sharples Separator Co.

West Chester, Pa.

Toronto, Can.

Chicago, Ill.